

## **Executive Summary**

This draft report is intended to provide some options for the shrimp industry and the public to consider as the U.S. shrimp industry moves into the future. The shrimp industry is volatile, and continues to be significantly affected by imports and rising costs. In NMFS' effort to provide accurate information and ensure that the information contained here was thoroughly reviewed, significant time has elapsed since the industry requested and provided input for this document. NMFS is providing this document so that the industry and public can review and comment on it to ensure its accuracy and timeliness.

Imports have severely impacted prices in the Gulf of Mexico and southern Atlantic states shrimp fishery. In the face of rising consumer demand, prices declined 27% in the Gulf of Mexico and 24% in the southern Atlantic states shrimp fisheries between 1997 and 2002 as imports increased 300%. In addition, fuel prices, which represent 25 percent of the operating cost for shrimpers, have been rising since 2002. Fishery management regulations to reduce gear conflicts, marine turtle mortality, and finfish bycatch levels have also increased operating costs in the shrimp fishery. Each unit decline in price or increase in operating cost increases the probability that a firm will exit the fishery. While these price declines and cost increases will reduce excess and overcapacity, the financial burden will be placed on those forced to exit the shrimp fishery. The harvest sector is not the only sector that bears the cost of a decline in shrimp prices. The estimated marketing margin in the processing industry has declined substantially with most of the decline occurring since the early 1990s. This indicates that per unit profitability is falling and provides a rationale for the substantial exit behavior of processing plants observed since the early 1990s. This could severely impact the 138,000 jobs and \$9 billion associated with production in the Gulf of Mexico and southern Atlantic states.

The growth in shrimp imports into the United States is attributed to three factors. First, although economic conditions have declined in the three primary shrimp importing regions (U.S., Japan, and the EU), the relative strength of the U.S. economy has led to a greater rate of import growth. Second, a changing EU tariff structure has redirected shrimp from Thailand (a major producer) into US markets. Third, higher detection levels for the banned substances chloramphenicol and nitrofurans under sanitary and phytosanitary measures have resulted in a redirection of shrimp products from the EU to US markets. However, it is equally important to recognize that the increased trade flow reflects not just increased production in total, but also the source of the increased output (i.e., farmed production versus wild production). First, farm-raised product has greater consistent quality than wild product; second, farmed product is less seasonal in nature and more reliable than its wild counterpart; third, species and sizes can be controlled better in the farm-based system than in a wild-based system; and fourth, the current trend toward vertical integration in the farming system lends itself to better adaptation to consumer needs. These factors have led to a surge in shrimp imports into the US over the last five years.

The surge in imports is most likely the primary cause of the decline in the domestic price of shrimp in the face of increased consumption. One solution, identified at the Houston Shrimp Summit and the Florida, Texas, North Carolina, and South Carolina public hearings, to the decline in financial viability of harvesters and processors is a generic marketing program for domestic shrimp. A shrimp seafood marketing board, which may already exist at the state level, could be established and made responsible for promoting the consumption of US-harvested and processed shrimp. Funding for this board could be based on an assessment of domestic landings or on both domestic landings and imports. To be successful, domestic shrimp would have to be differentiated from imported shrimp based on its quality, freshness, flavor, and texture. The board's staff should work closely with a selected group of distributors, retailers, and restaurants to better position the domestic product vis-a-vis the imported product, rather than targeting final consumers. Convincing only a few major grocery and restaurant chains to promote domestic shrimp could generate positive benefits for the industry. Such a program, according to an analysis using the General Bioeconomic Fishery Simulation Model (GBFSM) developed at Texas A&M University, could be funded by a one cent per pound assessment on domestic landings. This would cost \$1.5 million in the Gulf of Mexico and \$150,000 in the southern Atlantic states. A market promotion program would have to result in a 15 % increase in ex-vessel price to eliminate the negative economic profits for smaller vessels. However, any price increase would alleviate some of the financial pressure on shrimp fishing businesses. A 5% increase in ex-vessel price, for example, would increase revenues by 2.25% and employment by 2.24%.

To fully reap the benefits of this promotional program, shrimp harvesters would have to organize under the marketing board to prevent new entry into the fishery or the expansion of fishing effort and, hence, operating costs by participants in the fishery as shrimp prices increased. Without this harvester organization, new entrants or expansion of fishing effort would reduce the net benefits that could be generated by the price increase due to the promotional program. However, the most efficient harvesters in this highly diverse fishery could still benefit by capturing some of the economic profits generated by the price increase for domestically produced shrimp.

Any option that does not limit the number of vessels would fail to achieve a financially sustainable fishery. The goal in the simulation analysis is to make the shrimp fishery financially sustainable in spite of long periods of low shrimp prices, meaning that positive profits are achieved and sustained in the long run. This would require:

- 1) some type of permit/license moratorium that also limits capital stuffing;
- 2) a reduction in the number of vessels in the fishery; and
- 3) the prevention of capital stuffing.

The options examined in the simulation analysis included: 1) a permit/license moratorium; 2) a government buyback program; 3) a price support program; 4) increased shrimp prices through marketing paid for a tax on per pound of shrimp landed; 5) cooperatives for maximum profit; and 6) a fractional license (FL).

The price support program and the increased price through marketing did not have a vessel reduction component; rather, they encourage vessels to remain in the fishery that would otherwise exit the fishery during low shrimp prices. The price support program would be expensive for taxpayers and the price response achievable through a marketing program is uncertain. The permit/license moratorium by itself does not reduce the number of vessels in the shrimp fishery and would do nothing to alleviate the current financial situation. However, it would keep vessels from entering the fishery if and when shrimp prices increase so that economic profits become positive.

If cooperatives could be formed and managed for maximum profit, they would result in the greatest reduction in the number of vessels and the greatest increase in economic profits of all the programs considered. Cooperatives would allow fishermen to jointly harvest, market, and price their product without being in violation of antitrust laws. Capital could be organized by the cooperatives to maximize profit, and capital stuffing could potentially be controlled. However, there are more than 16,000 licensed vessels in the Gulf of Mexico and over 2,200 in the South Atlantic. Therefore, it is unrealistic to believe that all shrimpers will want to join a cooperative. But these results do illustrate that the shrimp fisheries in the Gulf of Mexico and South Atlantic are far overcapitalized relative to long-term economic sustainability. It is possible, however, that small cooperatives could be formed and a certain amount of catch could be assigned to each cooperative. Then the cooperative could manage its vessels so that economic profit could be maximized.

The first two requirements mentioned above could be met with a buyback program or a FL program, and these two programs appear to be the most likely means of improving the fisheries' economic condition. In considering these programs it is important to remember that in the Gulf of Mexico there are five state governments that have jurisdiction inshore and shoreline to the EEZ. In the South Atlantic there are four state governments that have jurisdiction inshore and shoreline to the EEZ. The federal government has jurisdiction within the EEZ. This presents a challenge for management of the shrimp fishery since to be fully successful the program must be implemented in both state waters and the EEZ. According to the simulation analysis, in the Gulf of Mexico the federal government could successfully implement either of these programs in the EEZ and increase fleet profitability. However, if the states also implement the same option in conjunction with that in the EEZ, then the increase in profitability would be even greater. In the South Atlantic the simulation results found that implementing a buyback program in the EEZ without the states cooperating would not be successful over the long run. However, the simulation model in the South Atlantic was highly aggregated due to lack of data, and the quality of the data was very poor. This may, therefore, influence the results.

*Buyback with a government grant:* In the Gulf of Mexico, a buyback program for only large vessels is effective in producing long-term financial sustainability for large vessels, provided something greater than 10% of the large vessels' permits/licenses are removed and there is an effective permit/license moratorium in place. For the same program in the South Atlantic, removing up to 50% of the permits/licenses would not

produce long-term financial sustainability for large vessels. This difference is probably due to a lack of data for analysis in the South Atlantic. In the Gulf of Mexico, a buyback program for large and small vessels is effective in producing long-term financial sustainability for small vessels only when 50% of the licenses are removed from the fishery. The reason is that the number of licenses far exceeds the number of full-time equivalent vessels (FTEV) in the small vessel fishery. This same program in the South Atlantic is more effective for small vessels than it is for large vessels. Finally, only in the buyback program for large vessels in the Gulf of Mexico did the benefits to the shrimpers exceed the cost to the government, provided something greater than 10% of the permits/licenses were purchased.

*Buyback with a government loan:* The large vessels in the Gulf of Mexico would achieve long-term economic stability if the government were to loan them money to buy back something greater than 10% of the vessels and then let the shrimpers pay off the loan over the next 10 years. The large vessels would benefit even if the small vessel fishery in the Gulf of Mexico remained an open access fishery. The small vessel fishery in the Gulf of Mexico would not achieve long-term economic stability if the government were to loan them money to buy back at any associated percent level evaluated. In the South Atlantic, the large vessels could not achieve long-term economic stability with this buyback program whereas the small vessel fleet could.

*Fractional license (FL):* If the federal government decided to implement a 50% FL program in the EEZ of the Gulf of Mexico, each vessel would be issued 50% of a tradeable license (permit) and would be prohibited from going fishing unless the owner had purchased rights from other vessel owners to complete 100% of a license. The fractional license can be traded among fishermen, so that 50% of the total number of licenses are removed from the EEZ shrimp fishery. The willingness to pay by each buyer would have to be determined for the other 50% of a license needed, as would the seller's willingness to accept payment for the half of the permit to be sold. The government could play a role in facilitating transactions in this market and encourage the program using government-backed long-term loans. When owners have more than one vessel, they would be allowed to transfer the fractional rights internally, avoiding the need for loans. The FL approach has the advantage of allowing market forces to identify those vessels that are retired from the fishery and does not place a significant long-term monetary burden on governments. Under low prices and negative economic profits, large vessel economic profits become positive as long as 30% or more of the licenses are retired. The loans per remaining large vessels are predicted to be negligible for a 10% program: ranging from about \$200 for a 30% program to \$31,000 for a 50% program. For small vessels, positive economic profits can be achieved only for the 50% FL scenario. For lower reductions, the small vessels continue to lose money and exit the fishery voluntarily.

Regardless of how the number of vessels in the fishery is controlled, the problem of capital stuffing must be addressed. One way to do this is to tie rights to some characteristic of the vessels or their gear. For example, in the Texas Parks and Wildlife Department buyback program, a vessel may be replaced, but it cannot be replaced with a

vessel that is more than 15% greater in length. A program in Australia ties licenses directly to gear. The challenge for any such approach is to ensure that effort is controlled without inhibiting technological innovations or locking in inefficient technology. The license could be tied to the length of headrope of the trawl that has been historically used with a given length of vessel. This would allow a vessel owner to optimize the vessel length and engine to the length of the total headrope of its nets. This would not completely remove all capital stuffing, but it should be more effective than approaches based on horsepower or length of vessel.

The fisheries for shrimp are highly diverse and complex, incorporating many different management agencies, different types of fishing craft and gear, various sizes, species, and sources of shrimp, and divergent user groups. Given this economic environment, a marketing program to increase shrimp prices combined with fractional licenses or shrimp cooperatives with or without complete state participation is the most likely set of management options that could improve the financial stability and quality of life of shrimpers in the Gulf of Mexico and southern Atlantic states fisheries.

Data used in assessing these proposals are two to three years old, and at least one year of data has become available since the assessments were completed. The shrimp fishery continues to change as it adjusts to changes in the market. Since this paper was drafted, the following events have taken place:

- 1) There has been a significant decrease in shrimp fishing effort in recent months.
- 2) A shrimp marketing plan has been initiated, called “Wild American Shrimp” by the Southern Shrimp Alliance.
- 3) The Alliance has also begun working with NOAA Sea Grant to undertake a quality control program for shrimp products.
- 4) Funds have been provided by Congress to conduct a study to determine the amount of fishing effort in the shrimp fishery. This study will be conducted with the Gulf and South Atlantic Foundation.

Some of these proposals have been analyzed in this report. Before being considered for the management of the southeastern region shrimp fishery, each of the assessments should be updated to assure their accuracy given the rapidly changing market and biological environment. Additional research will also be needed.

To support the shrimp seafood marketing board, NMFS could conduct well designed sensory and taste tests to determine real differences in wild and imported shrimp. NMFS could also conduct market assessments of demand and supply to determine how prices will change as a result of the promotion of wild shrimp attributes and to determine how imports will respond to these price changes. NMFS could work with state seafood promotion boards, industry representatives, and fishermen organizations to develop a shrimp seafood promotion program that could be implemented at the national level either through a compendium of state boards or by a national seafood promotion board.

NMFS could also assist fishermen by developing an information package to assist them in selling directly to retailers and consumers, which would outline legal requirements, necessary licenses and permits, and other information by state. NMFS could also extend information to industry, state and federal managers, and nongovernmental organizations on the development, structure, and operation of different management programs. This information could include suggestions on methods to control the expansion of fishing effort and prevent new entry into the Gulf of Mexico and southern Atlantic shrimp fisheries, specifically for fractional licenses and fishery cooperatives.